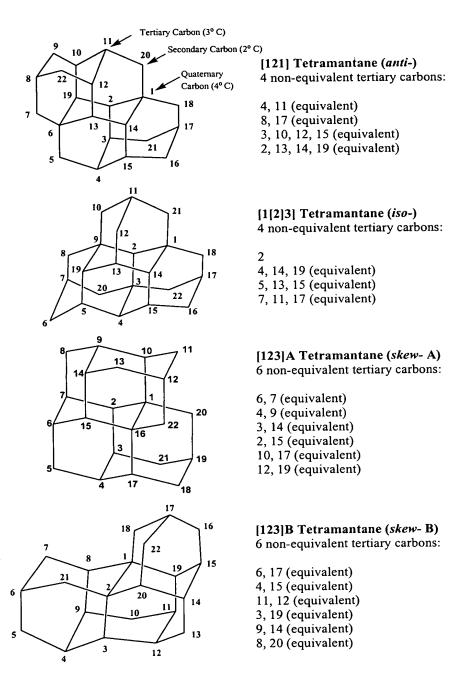
INVENTOR(S): LIU ET AL.

ATTORNEY DOCKET NO: 005950-836

FIG. 1

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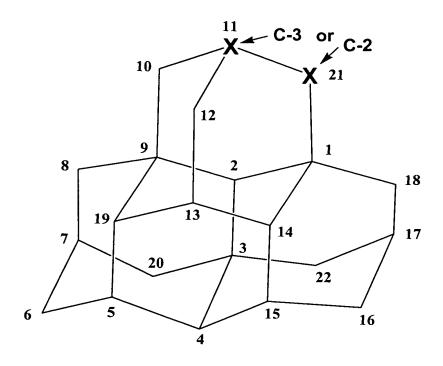


INVENTOR(S): LIU ET AL.

ATTORNEY DOCKET No: 005950-836

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FIG. 2

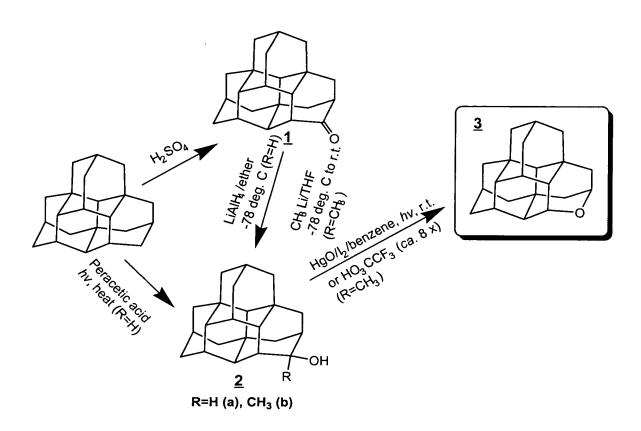


X		Heat of Formation (Kcal/mol)
iso-Tetramantane		-52.75
O	C-2	-78.57
S	C-2	-35.22
Se	C-2	-31.26
В	C-2	-18.40
	C-3	-9.32
N	C-2	-34.28
	C-3	26.94
P	C-2	-16.19
	C-3	-15.85
As	C-2	-20.68
	C-3	-18.63

INVENTOR(S): LIU ET AL.
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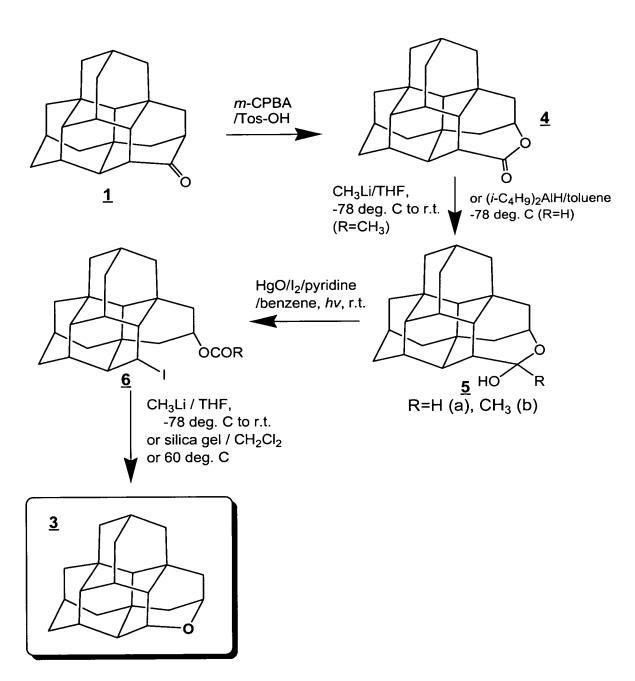
FIG. 3



INVENTOR(S): LIU ET AL.

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FIG. 4

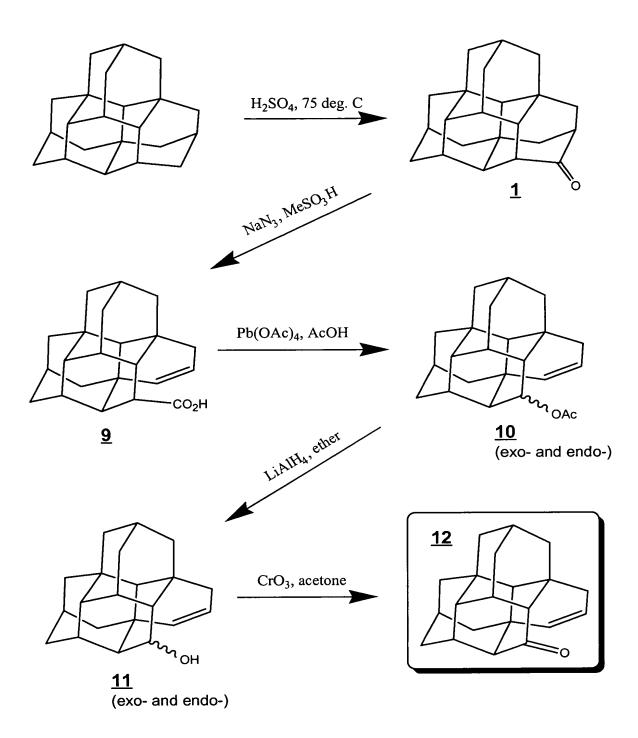


INVENTOR(S): LIU ET AL.

ATTORNEY DOCKET No: 005950-836

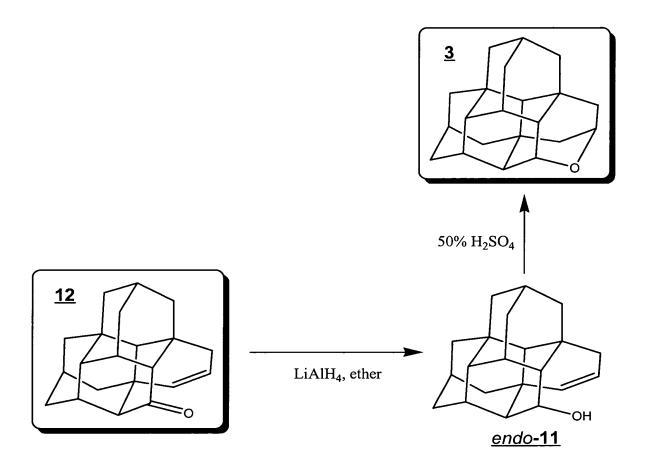
SHEET 5 of 51

FIG. 5



Inventor(s): Liu et al. Attorney Docket No: 005950-836 SHEET 6 of 51

FIG. 5 (cont'd)

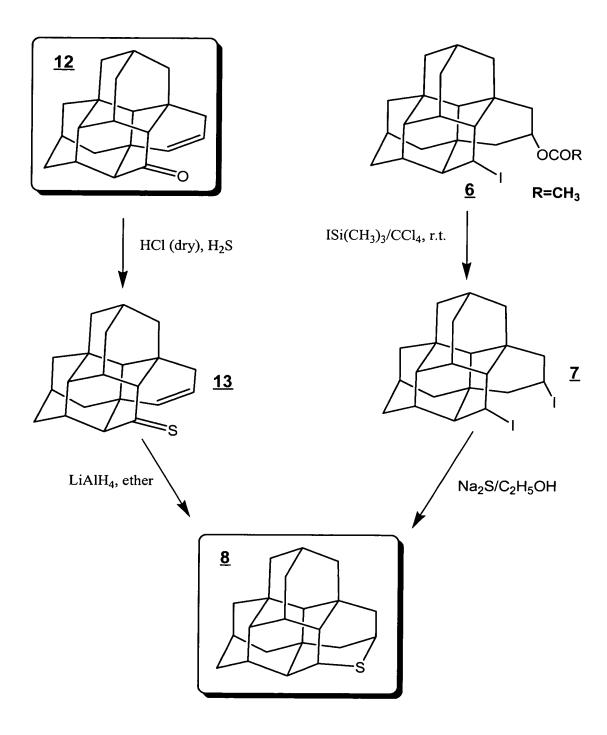


INVENTOR(S): LIU ET AL.

ATTORNEY DOCKET NO: 005950-836

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FIG. 6

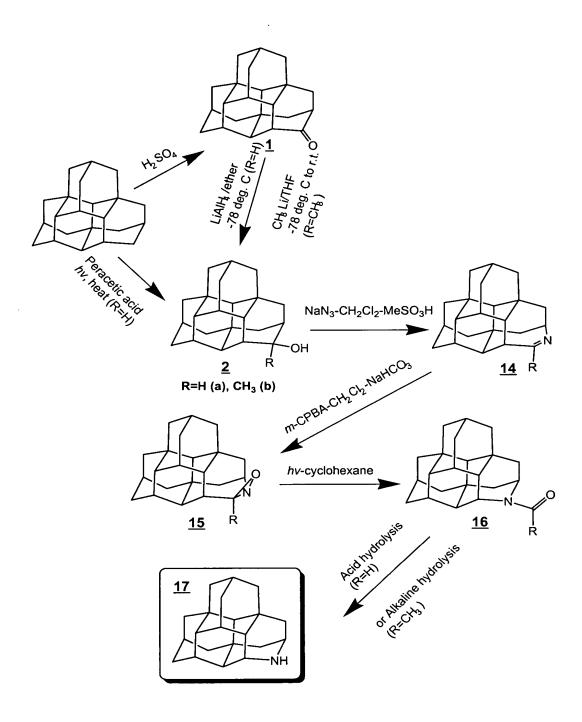


INVENTOR(S): LIU ET AL.

ATTORNEY DOCKET NO: 005950-836

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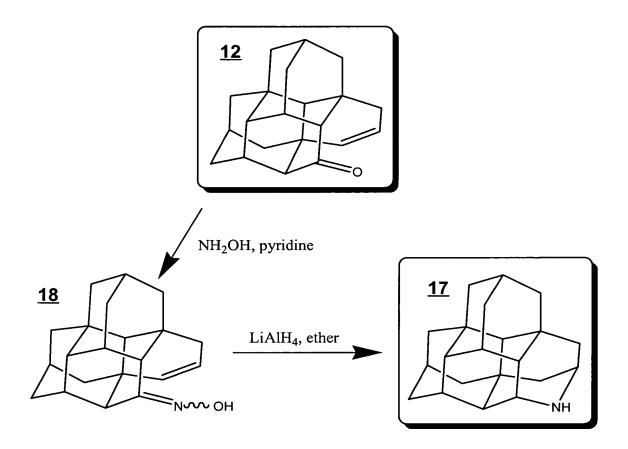
FIG. 7



INVENTOR(S): LIU ET AL. ATTORNEY DOCKET NO: 005950-836

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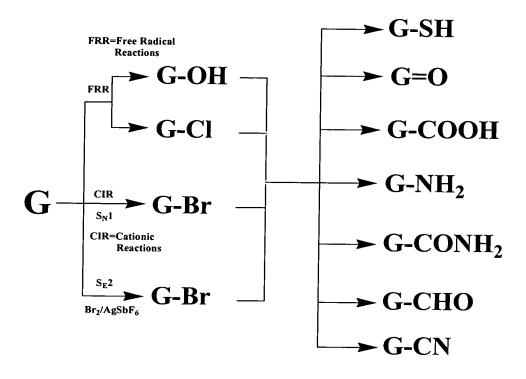
FIG. 8



INVENTOR(S): LIU ET AL.

ATTORNEY DOCKET NO: 005950-836 SHEET 10 of 51

FIG. 9



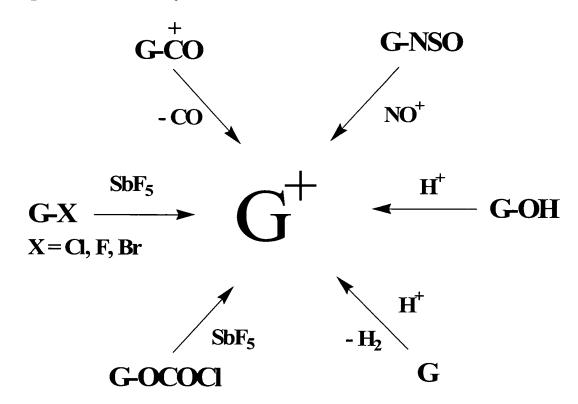
INVENTOR(S): LIU ET AL.

ATTORNEY DOCKET NO: 005950-836

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FIG. 10

Representative Ways of Generation of Heterodiamondoid Cations

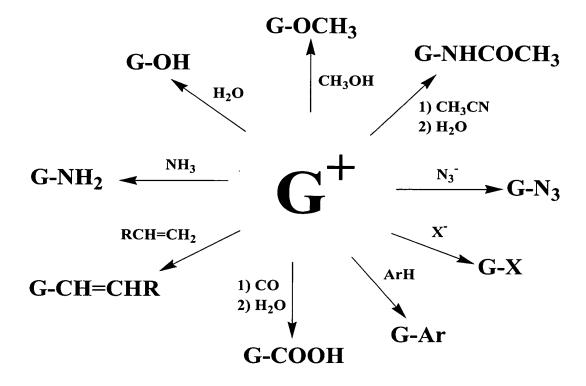


INVENTOR(S): LIU ET AL.

ATTORNEY DOCKET NO: 005950-836 SHEET 12 of 51

FIG. 11

Representative $S_N 1$ Reactions of Heterodiamondoid Carbocations



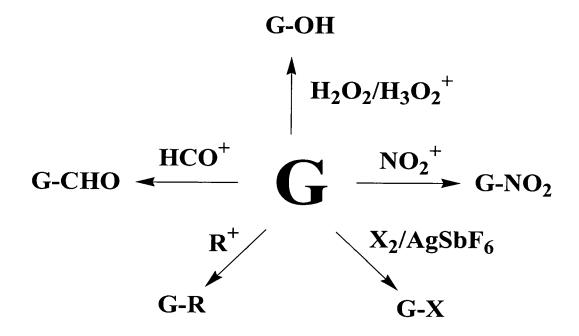
INVENTOR(S): LIU ET AL.

ATTORNEY DOCKET NO: 005950-836

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FIG. 12

Representative $S_E 2$ Reactions of Heterodiamondoids

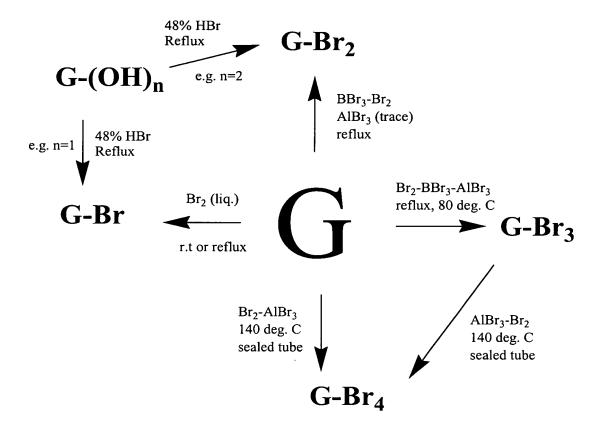


INVENTOR(S): LIU ET AL.

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FIG. 13



INVENTOR(S): LIU ET AL.

ATTORNEY DOCKET No: 005950-836

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FIG. 14

G-Cl₊

$$r.t$$
AlCl₃/SOCl₂
 75 deg. C
G-Cl₃

$$h\nu \text{ CCl}_4 \text{ Cl}_2$$

$$G-Cl$$

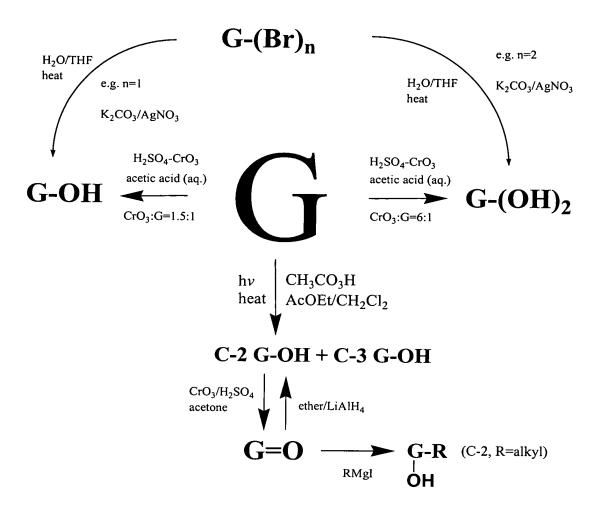
$$(C-2 G-Cl + C-3 G-Cl)$$

INVENTOR(S): LIU ET AL.

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FIG. 15

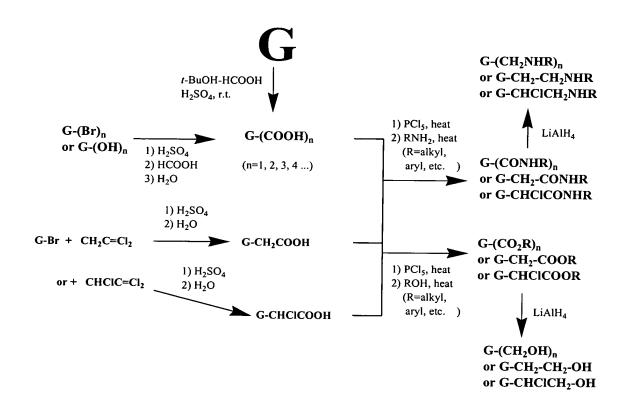


INVENTOR(S): LIU ET AL.

ATTORNEY DOCKET NO: 005950-836

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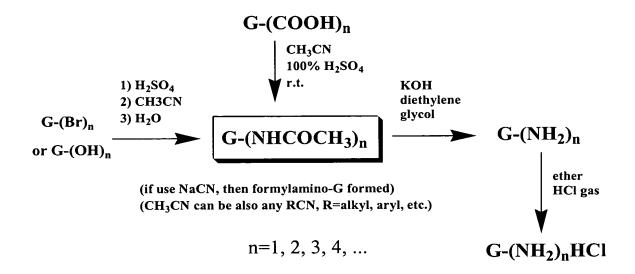
FIG. 16



INVENTOR(S): LIU ET AL.

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FIG. 17

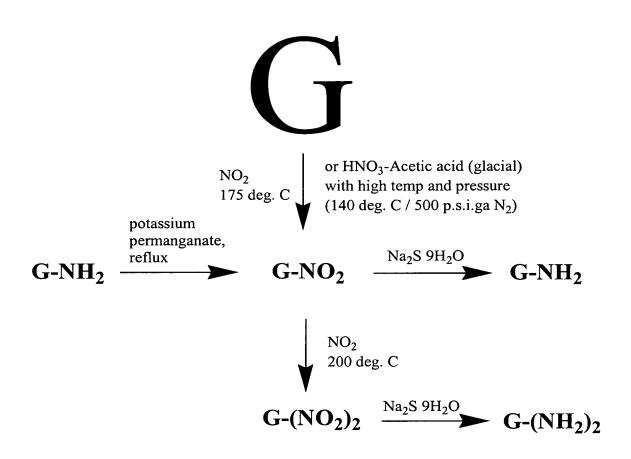


INVENTOR(S): LIU ET AL.

ATTORNEY DOCKET No: 005950-836

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FIG. 18



INVENTOR(S): LIU ET AL.

ATTORNEY DOCKET NO: 005950-836

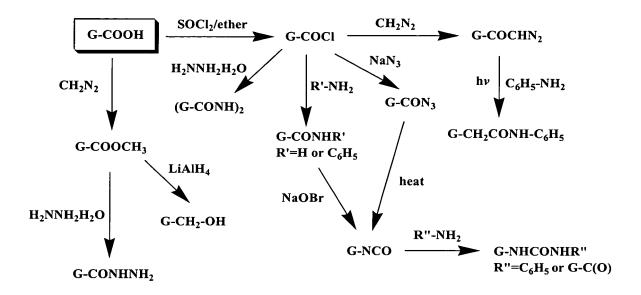
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FIG. 19

INVENTOR(S): LIU ET AL.

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FIG. 20



INVENTOR(S): LIU ET AL.

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FIG. 21

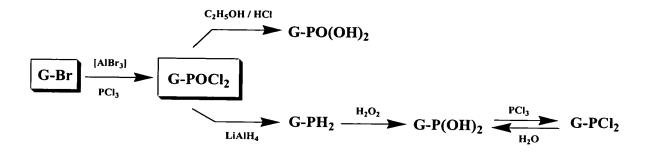
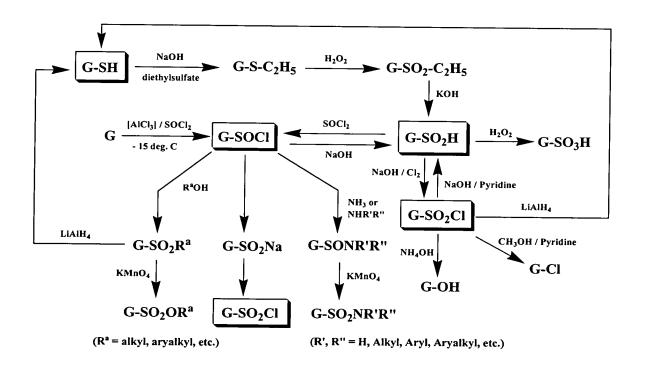


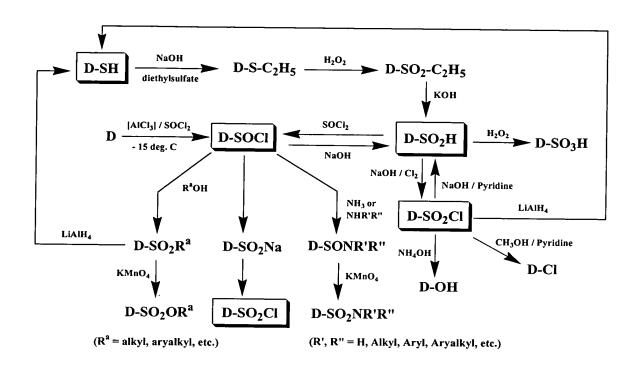
FIG. 22



INVENTOR(S): LIU ET AL.

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FIG. 23



APPLN. FILING DATE: JULY 16, 2003 TITLE: HETERODIAMONDOIDS INVENTOR(S): LIU ET AL. ATTORNEY DOCKET NO: 005950-836

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FIG. 24

INVENTOR(S): LIU ET AL.

ATTORNEY DOCKET NO: 005950-836

FIG. 25

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INVENTOR(S): LIU ET AL.
ATTORNEY DOCKET NO: 005950-836 **SHEET 26 of 51**

FIG. 26

INVENTOR(S): LIU ET AL.
ATTORNEY DOCKET NO: 005950-836

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FIG. 27

INVENTOR(S): LIU ET AL.
ATTORNEY DOCKET NO: 005950-836

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FIG. 28

INVENTOR(S): LIU ET AL. ATTORNEY DOCKET NO: 005950-836

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FIG. 29

INVENTOR(S): LIU ET AL.

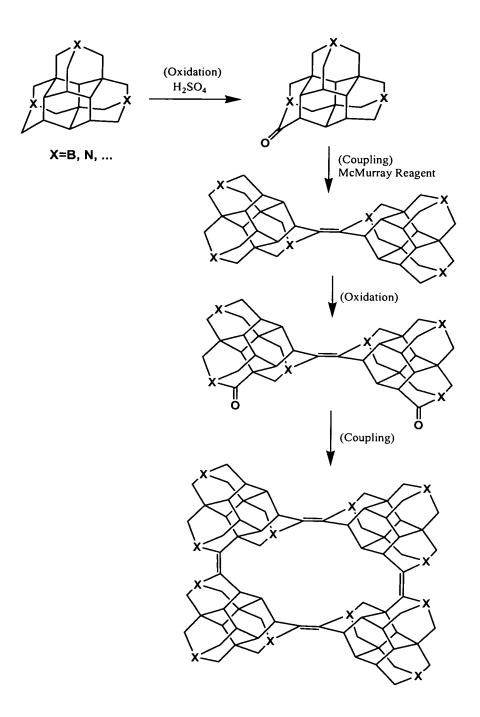
ATTORNEY DOCKET NO: 005950-836

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FIG. 30

INVENTOR(S): LIU ET AL.
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FIG. 31



INVENTOR(S): LIU ET AL.
ATTORNEY DOCKET NO: 005950-836 **SHEET 32 of 51**

FIG. 32

INVENTOR(S): LIU ET AL.

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FIG. 33

33

Linear

INVENTOR(S): LIU ET AL.

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FIG. 34

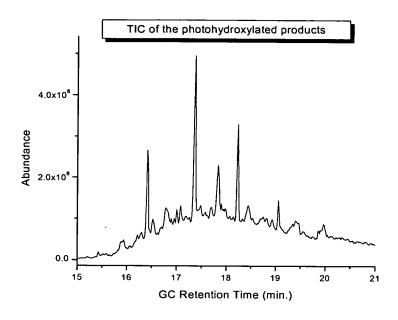
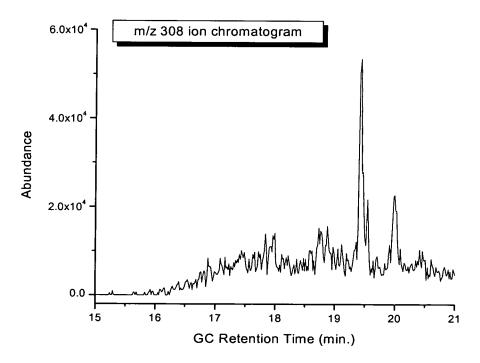


FIG. 35



INVENTOR(S): LIU ET AL. ATTORNEY DOCKET NO: 005950-836 **SHEET 35 of 51**

FIG. 36

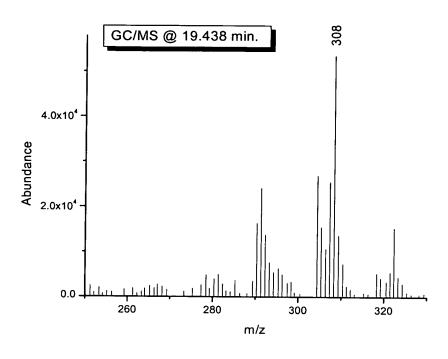
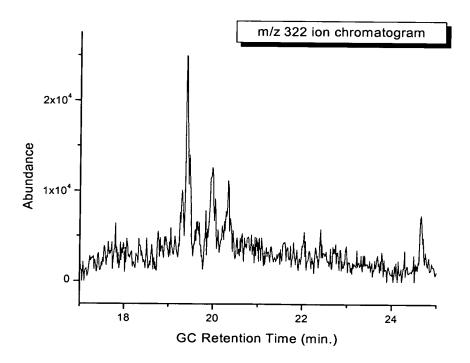


FIG. 37



INVENTOR(S): LIU ET AL.

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FIG. 38

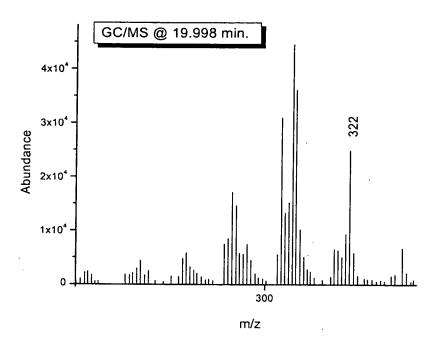
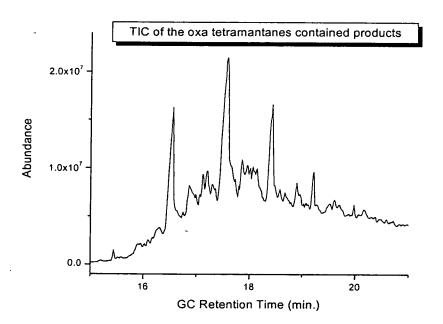


FIG. 39



INVENTOR(S): LIU ET AL.
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FIG. 40

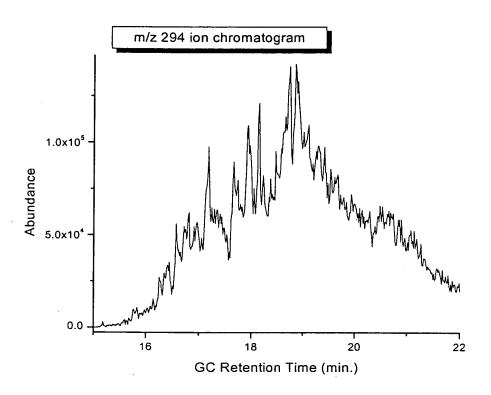
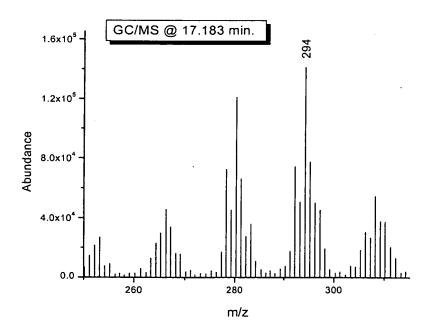


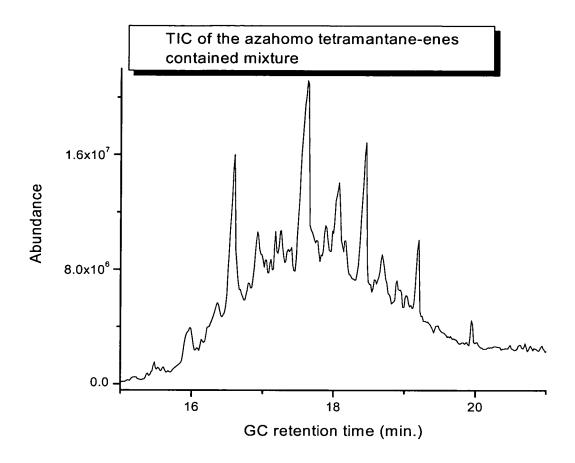
FIG. 41



INVENTOR(S): LIU ET AL.
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FIG. 42



INVENTOR(S): LIU ET AL.

ATTORNEY DOCKET NO: 005950-836

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FIG. 43

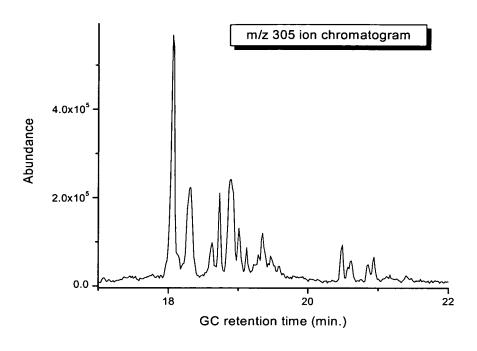
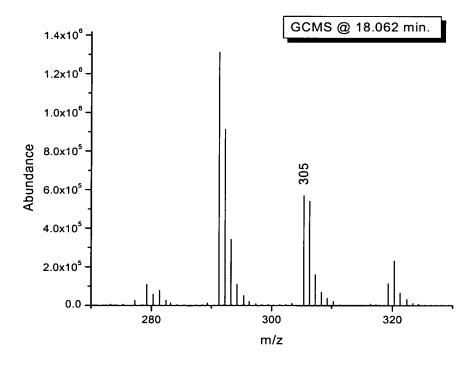


FIG. 44



INVENTOR(S): LIU ET AL.

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FIG. 45

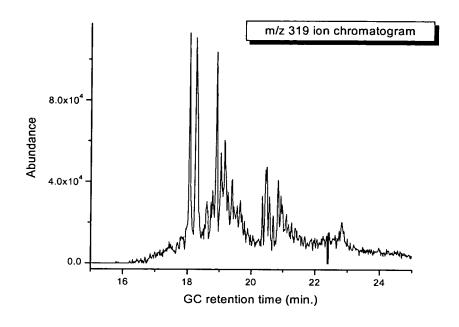
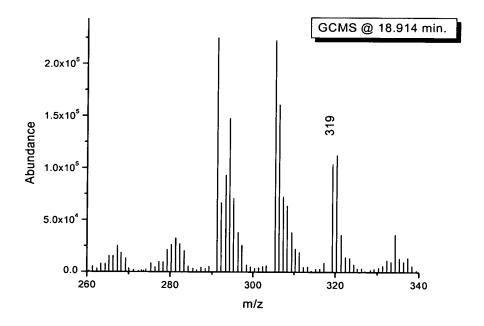


FIG. 46

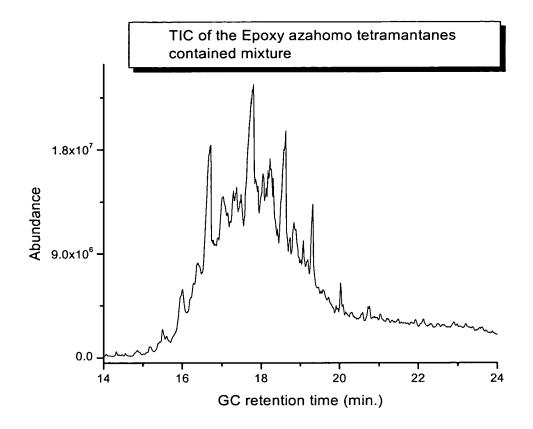


INVENTOR(S): LIU ET AL.

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FIG. 47



INVENTOR(S): LIU ET AL.
ATTORNEY DOCKET NO: 005950-836

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FIG. 48

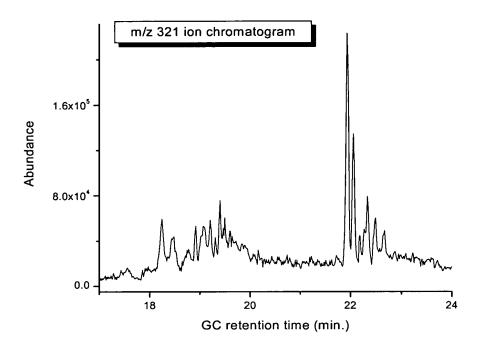
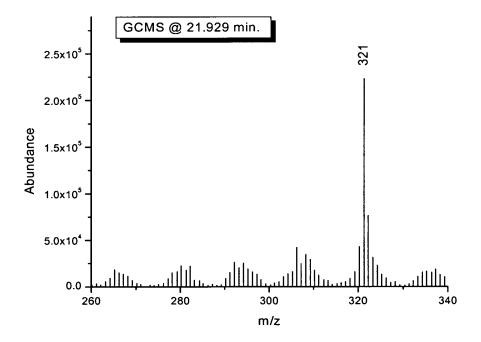


FIG. 49



INVENTOR(S): LIU ET AL.

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FIG. 50

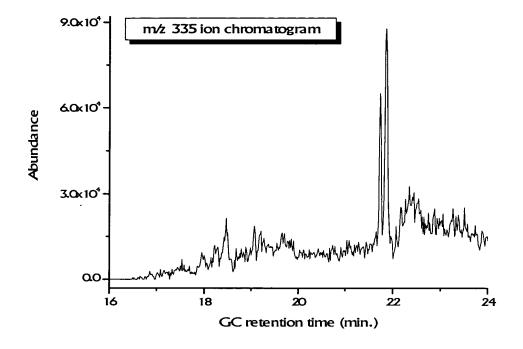
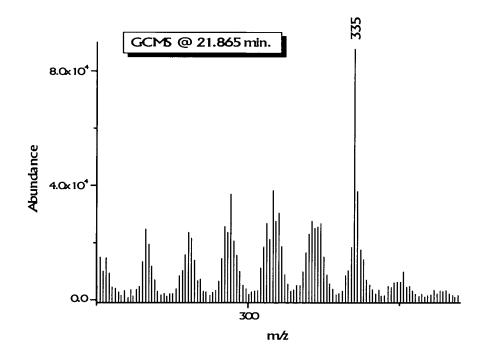


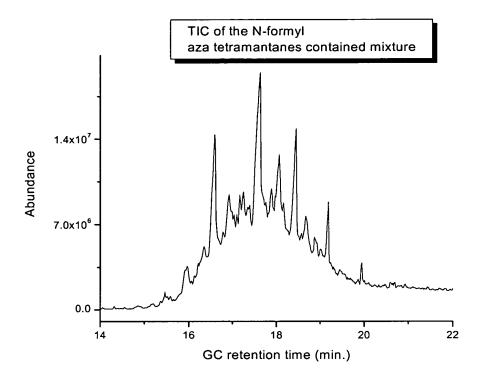
FIG. 51



INVENTOR(S): LIU ET AL.
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FIG. 52



INVENTOR(S): LIU ET AL.

ATTORNEY DOCKET No: 005950-836

FIG. 53

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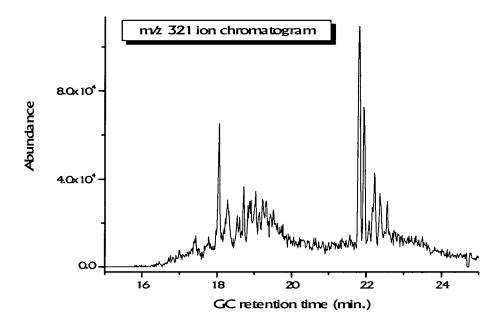
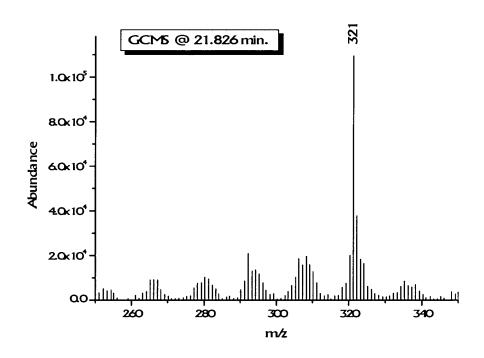


FIG. 54



INVENTOR(S): LIU ET AL.

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FIG. 55

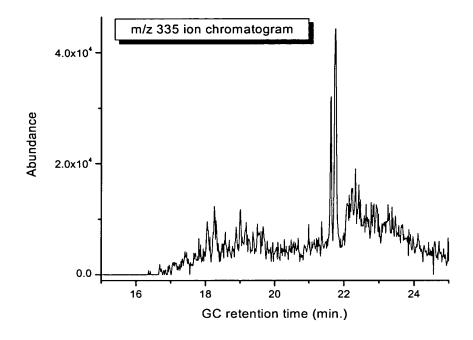
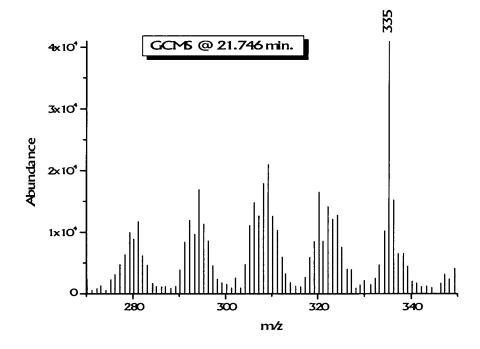


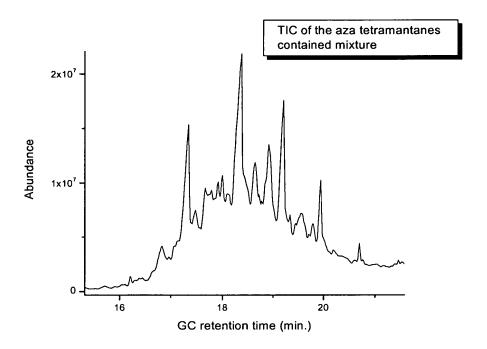
FIG. 56



INVENTOR(S): LIU ET AL.
ATTORNEY DOCKET NO: 005950-836

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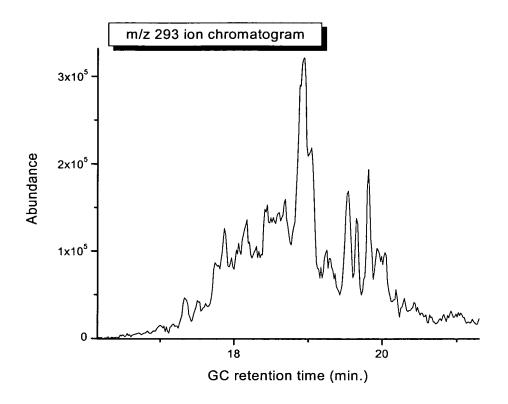
FIG. 57



INVENTOR(S): LIU ET AL. ATTORNEY DOCKET NO: 005950-836

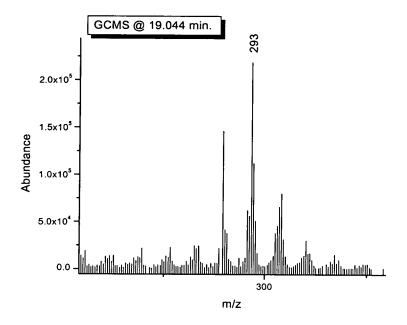
SHEET 48 of 51

FIG. 58



INVENTOR(S): LIU ET AL. ATTORNEY DOCKET NO: 005950-836 **SHEET 49 of 51**

FIG. 59



INVENTOR(S): LIU ET AL. ATTORNEY DOCKET NO: 005950-836

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FIG. 60

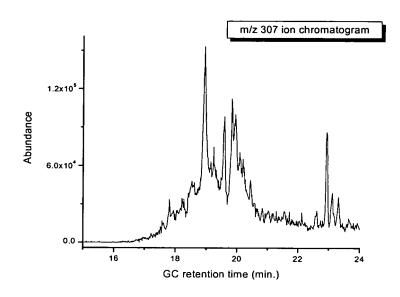
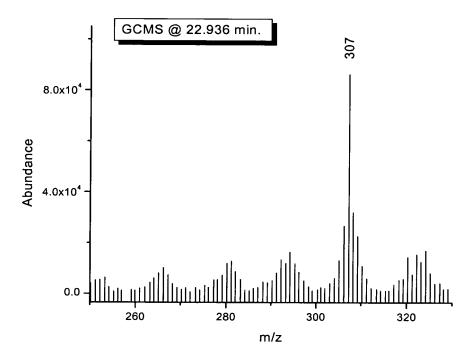


FIG. 61



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FIG. 62

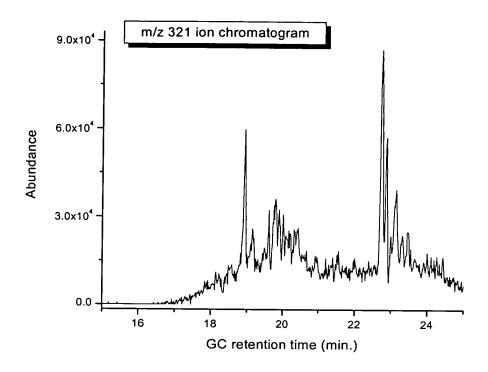


FIG. 63

